

SMITHSONIAN MISCELLANEOUS COLLECTIONS

VOLUME 56, NUMBER 17

NEW SPECIES OF RODENTS AND CARNIVORES FROM EQUATORIAL AFRICA

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(PUBLICATION 2006)

CITY OF WASHINGTON

PUBLISHED BY THE SMITHSONIAN INSTITUTION

February 28, 1911

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Further study of the mammals collected by the Smithsonian African Expedition has made necessary the description of twenty-one additional new forms which are dealt with in the present paper. The bulk of these new forms are from Rhino Camp, in the Lado Enclave. The specimens in the collection are the first which have been obtained in this unknown region. The Lado Enclave comprises the Nile watershed lying west of the Upper Nile (Bahr-el-Jebel). The precise geographical position of Rhino Camp is latitude $2^{\circ} 55'$ north, on the west bank of the Nile some fifteen miles north of the station of Wadelai.

This paper is the thirteenth dealing with the results of the expedition. Incidentally a new *Lophuromys* from West Africa is here described.

HELIOSCIURUS MULTICOLOR MADOGÆ, new subspecies

NIMULE TREE SQUIRREL

Type from Uma (50 miles north of Nimule), Uganda; adult male, number 164828, U. S. Nat. Mus.; collected by Kermit Roosevelt, February 11, 1910; Loring number, 8991.

Characters.—Size of *lateris*, but coloration distinctively buffy, the feet and under parts pure buffy yellow.

Coloration.—General coloration of upper parts mixed buffy, grayish, and black; individual hairs annulated, basally black, then ochraceous, followed by a broad band of black and then by a narrower subterminal band of grayish buff and terminated by a black tip. Eyes with a broad whitish eye-ring, cheeks and feet buffy. Tail annulated with buffy and black bands of equal width. Under parts and inside of limbs buffy; under side of tail basally, and anal region, tawny rufous in marked contrast to rest of under parts.

Measurements.—Head and body, 202 mm.; tail, 204; hind foot, 44. Skull: condylo-incisive length, 41.5; basilar length, 35; zygomatic breadth, 27.5; interorbital width, 13.5; length of nasals, 14; upper toothrow, 9; condylo-incisive length of mandible, 30.5.

This form of the widespread *multicolor* group is decidedly more buffy than its Lado ally, *lateris*, approaching more the color of *elegans* of Mr. Elgon. It is, however, distinctly smaller than this form and somewhat yellower.

The type is the only specimen in the collection. This was secured by Kermit Roosevelt in a clump of bamboo near the village of Uma.

PARAXERUS KAHARI, new species

MERU FOREST SQUIRREL

Type from Meru Boma, northeast of Mt. Kenia, British East Africa; adult female, number 164203, U. S. Nat. Mus.; collected by Edmund Heller, September 24, 1909; original number, 1174.

Characters.—Like *ganana*, but tail without rusty median stripe; skull larger and proportionately broader.

Coloration.—General dorsal coloration buffy olive, darkest medially, becoming lighter and more buffy on the sides; individual hairs annulated by a narrow subterminal band of buff; overlaid by longer wholly black hairs; dark area of back bordered by an obsolete lighter stripe. Eye with a broad buffy ring. Cheeks and lower sides olive buff. Feet above ochraceous. Ears like dorsum. Tail mixed blackish and buffy, without marked darker cross-bands, the border light buffy; below more yellowish buffy. Under parts cream buff, the hair on median line buffy to the roots.

Measurements.—Head and body, 175 mm.; tail, 172; hind foot, 38. Skull: condylo-incisive length, 36.5; basilar length, 31.5; zygomatic breadth, 24.5; interorbital width, 11.5; length of upper toothrow, 7.3; condylo-incisive length of mandible, 27.5.

This race is closely allied to *ganana* of Jubaland. Specimens from the northern Guaso Nyiro River are exactly like the type in body coloration, but are somewhat smaller skulled. In coloration of upper parts this race is similar to *ochraceus* from Mombasa, but the coast species is at once distinguishable by its bright ochraceous under parts.

Among the Wameru tribe this squirrel is known as *kahari*.

GRAPHIURUS PERSONATUS, new species

MASKED DORMOUSE

Type from Rhino Camp, Lado Enclave; adult female, number 164827, U. S. Nat. Mus.; collected by J. Alden Loring, January 11, 1910; original number, 8644.

Characters.—Dorsal coloration buffy, as in *lorraineus*, but size much less.

Coloration.—General dorsal colors buffy, overlaid by sepia, the buffy purer on sides and head and sharply defined against the gray of the under parts. Eye surrounded by a narrow black ring, which is continuous with a black streak to the tip of the snout. Cheeks creamy buff to level of eyes, where some fulvous separates it from the darker color of the upper parts; this light creamy color ascends behind ears and appears above them as a whitish tuft above each ear. Under parts grayish, washed with pale primrose yellow. Fore feet whitish, hind limbs broccoli brown like the tail; the toes and sides of the feet white. Tail above broccoli brown, the hairs lightening at tip and forming a light border; under surface lighter grayish or brown, but darkening toward tip, where it is the color of the upper surface.

Measurements.—Head and body, 82 mm.; tail, 63; hind foot, 14; ear, 10. Skull: condylo-nasal length, 23; zygomatic breadth, 13.5; length of nasals, 8.5; interorbital width, 4.3; length of upper tooth-row, 3.

Skull smaller than *lorraineus*, with shorter snout and smaller teeth. This species resembles *lorraineus* most closely in color and size. From *smithii*, which is about the same size, it differs widely in color, being buffy instead of grayish, with a distinct black eye-ring.

There is but a single specimen in the collection.

DENDROMUS SPECTABILIS, new species

NILE BLACK-FRONTED TREE MOUSE

Type from Rhino Camp, Lado Enclave; adult female, number 164815, U. S. Nat. Mus.; collected by J. Alden Loring, January 18, 1910; original number, 8783.

Characters.—Like *nigrifrons*, but lighter, the under parts pearl gray; feet whitish and the upper parts cinnamon fawn.

Coloration.—Color of upper parts cinnamon fawn, changing on lower sides and head to tawny buff, but not sharply defined against the pearl gray of the under parts; a wide black median dorsal line from shoulders to root of tail, widest anteriorly and narrowing gradually posteriorly; a median black spot on forehead midway between eye and ear. Snout lighter than rest of head, pure buffy yellow; base of whiskers and area between eye and tip of snout

blackish. A few white hairs at anterior base of ears and a larger white patch immediately below ear. Ears dark seal brown with a few silvery hairs on inside. Feet whitish. Lower parts pearl gray, the hair basally slate gray except on chin, throat, and under lip, which are white; median line of belly buffy. Tail dusky brown all around, essentially naked.

Measurements.—Head and body, 68 mm.; tail, 78; hind foot, 17.5. Skull: greatest length, 21; condylo-incisive length, 18.5; zygomatic breadth, 11.8; nasals, 7.5; diastema, 5; length of upper molar series, 3.1; condylo-incisive length of mandible, 12.

This species is allied to *nigrifrons*, but is readily distinguishable by its lack of buffy under parts and whitish feet. The series of eight topotypes shows very little variation in the color of the under parts.

DENDROMUS LINEATUS, new species

LADO TREE MOUSE

Type from Rhino Camp, Lado Enclave; adult male, number 164816, U. S. Nat. Mus.; collected by J. Alden Loring, February 1, 1910; original number, 8921.

Characters.—Size of *jamesoni* and coloration of *ochropus*, with short ears and small skull and feet.

Coloration.—Upper parts tawny ochraceous, lighter on the sides, ochraceous where the color is well defined against the white of the under parts; head lighter than body, ears darker umber-brown; a wide black median stripe extending from the shoulders to the base of the tail. Fore feet and under parts pure white, the hair white to the roots. Tail bicolor, dusky brown above, white below.

Measurements.—Head and body, 65 mm.; tail, 87; hind foot, 16.5. Skull: greatest length, 20; basilar length, 14.5; condylo-incisive length, 17.2; zygomatic breadth, 10; nasals, 7.2; diastema, 5; length of upper toothrow, 3.5; condylo-incisive length of mandible, 11.5.

Twelve topotypes are in the collection. This series shows great variation in the distinctness of the black median dorsal stripe. In seven of these it is well defined, but in the remaining five there are all degrees of obsolescence down to specimens which show only a very faint trace.

Dendromus jamesoni of the Transvaal seems to be a close ally of this species, the chief differences separating the two forms being the lesser zygomatic width of the skull and the smaller ear of the

Nile species. This new form approaches *ochropus* of British East Africa closer than any other equatorial species. From this species it is readily separable by the white under parts and the bicolored tail, and also by slightly smaller skull and feet.

Two other specimens, both with stripe obsolete, are in the collection from Hoima and Gondokoro, Uganda.

MUS MUSCULOIDES EMESI, new subspecies

UGANDA PYGMY MOUSE

Type from Kabula Muliro, Uganda; adult male, number 164819, U. S. Nat. Mus.; collected by J. Alden Loring, December 27, 1909; original number, 8497.

Characters.—Dorsal coloration similar to *murillus*; hair of under parts white to the roots; body size less, with proportionately smaller skull.

Coloration.—Median dorsal area blackish, sparingly flecked with tawny; sides lighter and more tawny, the lower sides well defined against the white of the under parts by a narrow band of fulvous; dorsal pelage composed of black hairs annulated with tawny and of scattered wholly black hairs. Limbs like sides, ears and dorsal surface of tail blackish and clothed by minute hairs. Feet and under parts white, the hair white to the roots. Lower side of tail whitish.

Measurements.—Head and body, 71 mm.; tail, 51; foot, 13.5. Skull: greatest length, 20.1; condylo-incisive length, 18.5; nasal, 7.9; zygomatic breadth, 10.5; palatal foramina, 4.4; upper molar series, 3.5.

Skull similar to *murillus* and to the members of the *musculoides* group generally, having the masseter knob and anterior cusp of m^1 little pronounced. This is a small white-bellied Nile race of the widespread *musculoides* group.

The series of nine topotypes shows considerable variation in dorsal coloration, ranging from the dark color of the type to a rufous phase. A specimen taken at Hoima, Uganda, is also referable to this new form.

MUS WAMÆ, new species

LONG-SNOOUTED PYGMY MOUSE

Type from Kapiti Plains, British East Africa; adult female, number 161777, U. S. Nat. Mus.; collected by J. Alden Loring, May 6, 1909; original number, 6061.

Characters.—Long snouted like *sorellus*, but snout longer, the nasal bones measuring 8.5 mm. in length; upper parts much lighter, ochraceous-buff.

Coloration.—Median dorsal region from eyes to base of tail ochraceous-buff, heavily lined with black; snout and sides of head and body from level of eyes purer ochraceous-buff, changing to fulvous on lower sides where this color meets the white of the under parts. Ears hair brown, an ill-defined white spot at their base. Tail nearly naked; light brownish above, whitish below. Under parts, feet, and snout from level of nose, white; the hair white to the roots.

Measurements.—Head and body, 68 mm.; tail, 40; foot, 15. Skull: occipito-incisive (greatest) length, 20.5; condylo-incisive length, 20; length of nasals, 8.5; width of interorbital constriction, 3.2; length of palatal foramina, 5.4; width of brain case, 9; length of upper molar series, 3.6.

This species is closely allied to *sorellus*, with which it agrees in the peculiar elongate snout and straight projecting incisors, and also in general proportions of body. *Sorellus* is, however, only distantly related to *gratus*, but shows close relationship to *tenellus* in the formation of the short, narrowed mesopterygoid region, straight incisors and short tail. The group to which this species belongs represents the extreme divergence of the African Leggadas from the *Mus musculus* group in skull characters. This difference from the type species of *Mus* is most marked in the straight, projecting incisors, the elongate snout, the abbreviated, narrow, mesopterygoid fossa, and the minute coronoid process of the mandible. In the two latter characters these long-snouted African *Mus* approach somewhat the skull condition exhibited by *Acomys*.

This is rather a rare species, being represented by only one skin and one alcoholic specimen in the collection, which contains some hundred specimens of Leggadas from British East Africa.

MUS TENELLUS ACHOLI, new subspecies

LONG-SNOUTED PYGMY MOUSE

Type from Rhino Camp, Lado Enclave; adult male, number 164817, U. S. Nat. Mus.; collected by J. Alden Loring, January 13, 1910; original number, 8671.

Characters.—Coloration of *tenellus*, but size much larger, with large skull and proportionately short tail.

Coloration.—Median dorsal area mixed blackish and fulvous, the

snout and posterior rump more fulvous; sides pure fulvous, fairly well defined against the dark dorsal area and the white of the under parts; limbs fulvous like the sides. Ears blackish, covered sparingly by minute grayish hairs. A conspicuous white subaural patch. Feet and under parts white, the hair white to the base. Tail hair brown above, whitish below, closely covered by short stiff hairs which hide the annuli.

Measurements.—Head and body, 68 mm.; tail, 36; foot, 13. Skull: greatest length, 20.5; condylo-incisive length, 19; zygomatic breadth, 10; palatal length, 11; nasals, 8; length of upper molar series, 3.3; palatine foramina, 5.

This is a larger race of the *tenellus* group of the Lower Sudan, of which it is the extreme in size. From *suahelica* of the Kilimanjaro region this species differs widely in its much larger size and lighter coloration. The *tenellus* group is well defined by its long snout, projecting incisors, and short hairy tail. Three other specimens are in the collection from the type locality.

MUS GRATUS SUNGARÆ, new subspecies

KENIA PYGMY MOUSE

Type from West Kenia Forest Station, altitude 7,500 feet; old male, number 163487, U. S. Nat. Mus.; collected by J. Alden Loring, September 20, 1909; original number, 7425.

Characters.—Like *gratus*, but larger and lighter colored, with the central dark area better defined.

Coloration.—Median dorsal area from snout to base of tail mixed blackish and tawny in about equal parts; sides lighter, purer tawny, changing somewhat abruptly from the dark dorsal region; bounded on lower sides where the sides meet the white of the under parts by a fulvous line. Ears hair brown. Tail dark brown above, light brown below. Under parts and feet white, the hair white to the roots.

Measurements.—Head and body, 70 mm.; tail, 60; hind foot, 14.5. Skull: occipito-nasal (greatest) length, 19.5; condylo-incisive length, 18.2; basilar length, 15.5; zygomatic breadth, 10; length of nasals, 7.2; length of palatal foramina, 4.9; length of upper tooth-row, 3.5.

The material of this form in the collection is quite extensive. From the type locality there are six specimens, ten from Nyeri, seven from Waubugus, and eight from Naivasha. There is con-

siderable variation due to age, the young usually having the under parts quite buffy with the hair basally plumbeous, the pure white under parts being acquired only in old adults.

MUS BELLUS GONDOKORÆ, new subspecies

GONDOKORO PYGMY MOUSE

Type from Gondokoro, Uganda; adult male, number 164820, U. S. Nat. Mus.; collected by J. Alden Loring, February 25, 1910; original number, 9089.

Characters.—Smaller and lighter colored than *bellus*, with the subaural white spot well defined.

Coloration.—Median dorsal area from eyes to posterior rump hair brown, much lighter than the fulvous sides against which it is not well defined; snout, area about eye, limbs, and sides of body bright fulvous, sharply contrasted with the white of the under parts. Ears hair brown like back. Under parts, tip of snout, and lips and feet, white; the hair white to the roots. Tail brown above, lighter and whiter below.

Measurements.—Head and body, 60 mm.; tail, 43; hind foot, 13. Skull: greatest length, 17.6; condylo-incisive length, 16; zygomatic breadth, 9.4; nasal, 63; length of upper toothrow, 3.

The type is the only specimen in the collection.

MUS BELLUS ENCLAVÆ new subspecies

ENCLAVE PYGMY MOUSE

Type from Rhino Camp, Lado Enclave; adult male, number 164818, U. S. Nat. Mus.; collected by J. Alden Loring, January 10, 1910; original number, 8613.

Characters.—Size of *bellus*, but dorsal coloration much darker, the sides nearly as dark as the median region.

Coloration.—Upper parts blackish, the median region very sparingly flecked with tawny; sides more tawny, about equally mixed broccoli brown and tawny; snout dorsally blackish to tip, sides of head and snout tawny ochraceous, enclosing the eye on lower and posterior side only, the buffy eye-ring being broken above by the blackish suffusion of the head. Ears hair brown, with an indistinct white patch at their base. Tail dark brown above, lighter brownish below. Under parts from level of nostrils and feet white, the hair white to the base.

Measurements.—Head and body, 64 mm.; tail, 46; hind foot, 13. Skull: occipito-nasal (greatest) length, 18; condylo-incisive length, 16.5; length of nasals, 6.2; zygomatic breadth, 9.2; palatal foramina, 4.3; length of upper toothrow, 3.1.

This is a dark form of the widespread *bellus*. A series of thirteen from Rhino Camp show very little variation in the dark upper parts and are readily distinguishable from the light sided *bellus*, with its sharply defined dark dorsal area.

ARVICANTHIS PULCHELLUS MICROPUS, new subspecies

LADO STRIPED GRASS RAT

Type from Rhino Camp, Lado Enclave; adult female, number 164825, U. S. Nat. Mus.; collected by J. Alden Loring, January 24, 1910; original number, 8861.

Characters.—Closely allied to *massaicus*, but feet smaller and skull narrower.

Coloration.—General dorsal coloration bistre brown; the back marked by ten parallel lines of ochraceous spots, the central pair enclosing a median black dorsal line; sides lighter and more grayish, the spots light buffy. Feet and ears ochraceous. Tail blackish above, buffy on sides and below. Under parts cream buff, the hair uniform to the roots.

Measurements.—Head and body, 114 mm.; tail, 125; hind foot, 23. Skull: condylo-incisive length, 25; zygomatic breadth, 23.5; nasals, 11 x 3; diastema, 7; length of upper toothrow, 5.2; length of bullæ, 5; condylo-incisive length of mandible, 18.

There are eleven topotypes in the collection. In color these range from the grayish color of *massaicus* to a buffy tint similar to *ardeus*. A series from Uganda, taken along the route from Kampala to Butiaba, agree in the small size of their feet and in color with the types series. One specimen from Gondokoro has the spots so coalesced as to form lines as in *barbarus*, from which it is not distinguished except in the flatter skull and darker olivaceous body color.

ARVICANTHIS JEBELÆ, new species

WHITE-BELLIED GRASS RAT

Type from Rhino Camp, Lado Enclave; number 164826, U. S. Nat. Mus.; collected by J. Alden Loring, January 16, 1910; original number, 8762.

Characters.—Tail long, length equaling head and body or greater; nasal bones slightly concave along lateral edges; upper parts tawny ochraceous, lower parts white.

Coloration.—Upper parts tawny ochraceous, sparingly lined by black; purer ochraceous on sides, the color extending low down on sides of belly, but not sharply defined against the white under parts; pelage made up of narrowly seal brown tipped hairs with a broad band of ochraceous followed by slate to the base, the subterminal ochraceous band giving the pelage its color character; interspersed with these annulated hairs are longer black ones, which give the median dorsal area a lined effect. Eyes with an ill-defined buffy ring. Ears chiefly ochraceous, with a few black hairs about the base and on the inner side. Feet ochraceous. Tail with a broad dorsal band of black, the sides buffy and the lower surface whitish. Under parts white, the hair white almost to the roots, the base ashy gray; on chin, lips, throat, and thighs the hair is white to the roots.

Measurements.—Head and body, 140 mm.; tail, 150; hind foot, 29. Skull: condylo-incisive length, 31.5; greatest length, 35.5; zygomatic breadth, 17; interorbital constriction, 5; nasals, 12.5 x 4; length of upper row, 6.5; diastema, 8.2; length of palatine foramina, 5.5; length of bullae, 5.6; condylo-incisive length of mandible, 22.

This species occurs at its type locality with *rubescens*, both being forms of the *abyssinicus* group. Both forms occur about Gondokoro also. The color differences from the dark-bellied, shorter-tailed *rubescens* are marked, but the skull differences consist of only average characters, such as the slight concavity to the edges of the nasal bones and the lack of beading to the anterior part of the interorbital region.

The type locality is represented by a series of twenty-four skins in which are specimens of all ages, but the variation in color is very little. The relationship between length of head and body and the length of the tail in this series shows the following proportion: tail longer than head and body, 8 specimens; tail equal to head and body, 6 specimens; tail slightly shorter than head and body, 10 specimens.

LOPHUROMYS PYRRHUS, new species

^ LADO HARSH-FURRED MOUSE

Type from Rhino Camp, Lado Enclave; adult male, number 164823, U. S. Nat. Mus.; collected by J. Alden Loring, January 24, 1910; original number, 8853.

Characters.—Size large, skull long-snouted; under parts bright orange-rufous.

Coloration.—Upper parts uniform seal brown, becoming lighter only on lower sides where the coloration merges gradually from burnt umber to the cinnamon rufous of the belly. Feet lighter than back, vandyke brown. Tail quite blackish above and on the sides, the median under surface becoming lighter. Under fur of upper parts chestnut brown. Under parts from chin to base of tail bright cinnamon rufous, the color uniform to the roots of the hair.

Measurements.—Head and body, 136 mm.; tail, 72; hind foot, 22.5. Skull: condylo incisive length, 31; basilar length, 27; zygomatic breadth, 15.5; interorbital width, 6.7; length of nasals, 14; length of upper toothrow, 5; condylo-incisive length of mandible, 22.5.

Compared to *ansorgei* of the Kavirondo country of British East Africa, this form has the under parts much brighter red, the intensity of the red persisting through old age. *Sikapusi*, which has the same bright under parts, is a smaller race with a decidedly broader skull, with shorter, more convex nasal bones.

LOPHUROMYS NUDICAUDUS, new species

Type from Efulen, Bula country, Kamerun; adult male, number 125436, U. S. Nat. Mus.; collected by G. L. Bates, August 4, 1903; original number, 26.

Characters.—Tail essentially naked, the annulations conspicuous; hair very harsh; skull with small flattened bulke and shortened brain case, the parietal bones short.

Coloration.—Upper parts uniform seal brown, the hair uniform in color to the roots on median line, but lightening on sides. Feet vandyke brown. Under parts chiefly cinnamon rufous, the chest orange rufous. Tail quite naked, with distinct annulations, uniform deep seal brown in color.

Measurements.—Total length, 166 mm.; tail (skin), 60; foot, 18.5. Skull: condylo-incisive length, 25; basilar length, 21; zygomatic width, 13.5 (approximate); interorbital width, 6.5; length of nasals, 11.6; length of upper toothrow, 4.4; condylo-incisive length of mandible, 17.3.

This is a small species of *Lophuromys* and differs from the other described species in its very much harsher fur and essentially naked tail.

URANOMYS UGANDÆ, new species

UGANDA BIG-TOOTHED MOUSE

Type from Kikonda, Uganda; adult male, number 164822, U. S. Nat. Mus.; collected by J. Alden Loring, January 2, 1910; original number, 8570.

Specific characters.—Most closely related to *ruddi* of the Mount Elgon District of British East Africa. Differs decidedly in the shorter and narrower skull and the shorter nasal bones. Size smaller and coloration of under parts without any pinkish wash.

Coloration.—Median portion of head and body above sepia flecked minutely with light brown, changing gradually on sides of head and body to a fulvous flecked with sepia. Under parts light grayish with a buffy wash. Fore and hind limbs with the color of the sides, except the feet, which are white. Tail dusky brownish above, becoming somewhat lighter below.

Measurements.—Head and body, 101 mm.; tail, 75; hind foot, 18; ear, 12. Skull: greatest length, 27; condylo-basal length, 25; zygomatic breadth, 14.5; nasals, 7.5×3.5 ; upper toothrow, 4.5; palatal foramina, 7.5.

The skull of this genus is very close to *Acomys* in structure, the palatal region especially being similar, but externally this species can be scarcely distinguished from *Lophuromys aquilas*, with which it is found associated. The collection contains but a single specimen. The teeth in this individual are quite worn, so that the tubercular structure cannot be made out. Compared with skulls of equal age of *Lophuromys* and *Acomys*, the m_3 is found to lack the minute posterior median cusp which is found in both these genera. The structure of the floor of the skull closely resembles *Acomys*. The depressions marking the termination of the bony palate are, however, much deeper and have prominent margins, the interpterygoid fossa is wider and has parallel sides and blunt bead-shaped pterygoid processes. The mandible resembles more that of *Lophuromys* in the shape of its coronoid process, which is long and slender and very different from the minute projection which is found in *Acomys*. The condylar process is considerably larger than in either *Lophuromys* or *Acomys*. The most marked difference, however, is the prominence given to the incisor capsules. In this genus the capsule forms a prominent shelf-like projection midway between the coronoid and the condylar processes. The incisor condyle of *Acomys* and

Lophuromys is scarcely perceptible on the surface of the posterior portion of the ramus. This genus has the external characters of *Lophuromys* with the palatal skull formation of *Acomys* and distinctive projecting incisors and marked mandibular characters.

ACOMYS HYSTRELLA, new species

GRAY-BACKED SPINY MOUSE

Type from Nimule, Uganda; adult female, number 164821, U. S. Nat. Mus.; collected by J. Alden Loring, February 4, 1910; original number, 8929.

Characters.—Size large; tail three-fourths head and body; dorsal coloration drab gray with fulvous sides; nasal bones short.

Coloration.—Median dorsal region from the snout to the base of the tail drab-gray, this color merging gradually into the fulvous of the sides; fulvous of cheeks, lower sides, and legs sharply defined against the white of the under parts. Spinous hair of sides annulated, the extreme tip seal brown, succeeded by a broad band of fulvous, which is followed by cinereous gray to the base; this annulation is not perceptible in the darker spines of the back, the subterminal band of drab-gray being nearly as dark as the tips. Feet white. A small white spot below the ear. Ears smoky-brown clothed with a mixture of minute brownish and silvery hairs. Tail sharply bicolor; above lighter gray than the back, below whitish. Under parts, including upper lips and feet, white, the hair white to the roots.

Measurements.—Head and body, 111 mm.; tail, 81; hind foot, 16; ear, 15. Skull: greatest length, 28.3; basilar length, 22; zygomatic breadth, 13.2; nasals, 10.5 x 3.5; interorbital constriction, 5; length of palatine foramina, 6.7; length of upper toothrow, 4.5.

From the Somali species, *mullah*, this species differs in its smaller size, more fulvous sides, and shorter tail and nasal bones. The fulvous sides also distinguish it from the grayish *cahirinus* of Egypt, from which it further differs by larger skull and acutely pointed mesopterygoid fossa and smaller bullæ.

DASYMYS ORTHOS, new species

NYANZA SWAMP RAT

Type from Butiaba, Albert Nyanza, Uganda; adult male, number 164824, U. S. Nat. Mus.; collected by J. Alden Loring, January 1, 1910; original number, 8601.

Characters.—Antorbital plate with a straight anterior margin, with scarcely any concavity; bullæ small, coloration brownish; size large.

Coloration.—General dorsal coloration Prout's brown, becoming grayer on the sides and merging gradually into the olive-yellow wash of the gray under parts. Dorsal pelage made up of long black hairs which overlay the nearest shorter ones, which are terminally seal brown, then broadly tawny and basally slate. Limbs light wood brown. Tail showing very little hair, the annulation conspicuous, color broccoli brown.

Measurements.—Head and body 160 mm.; tail, 156; hind foot, 32. Skull: condylo-incisive length, 36.5; zygomatic breadth, 18.5; nasal, 13.5; palatal foramina, 8; length tympanic bullæ, 5.6; length upper toothrow, 7.3; diastema, 11.2; condylo-incisive length of mandible, 26.

This species is a much browner species than *medius*, with larger body size. The skull differs decisively from a large series of *helukus* from British East Africa in its straight-edged antorbital plate, which is scarcely more angulated at its upper edge than in *Epinys alexandrinus*.

There is one other specimen from Butiaba in the collection, and a third from Rhino Camp.

DASYMYS SAVANNUS, new species

KENIA SWAMP RAT

Type from Fort Hall, British East Africa; adult female, number 164471, U. S. Nat. Mus.; collected by J. Alden Loring, October 28, 1909; original number, 8182.

Characters.—Coloration umber-brown, skull with antorbital plate much angulated and produced, giving the antorbital vacuity great depth; size smaller than in *helukus*; tail essentially naked.

Coloration.—Upper parts umber, overlaid medially with black, the individual hairs tawny-ochraceous, with dark brown tips and slaty bases mixed with longer black hairs. Sides lighter, purer ochraceous, becoming more grayish where they meet the olive-gray wash of the lower parts. Feet pale brown. Ears hair brown, clothed with minute grayish hairs. Tail like the ears in color, but quite naked, with the annuli showing conspicuously.

Measurements.—Head and body, 156 mm.; tail, 146; hind foot, 29.5. Skull: condylo-incisive length, 37.5; zygomatic breadth, 19;

nasal, 14; palatal foramina, 8.5; length of bullæ, 6; upper tooth-row, 7.5; diastema, 12.5; condylo-incisive length of mandible, 28.

This species is very much browner than *helukus*, with a less hairy tail in old age, and smaller body size. The angle of the antorbital plate is much more pronounced than in any other specimen in the collection. Interorbital region narrow, the beads on margin much raised and leaving a deep median groove.

A large series of specimens show the age differences in skulls to be great. The interorbital region changes from a flat, weakly beaded condition to a narrow, deeply concave affair with high beads. Bullæ in youth high and rounded, becoming in age flat and broad, antorbital plate less concave in young.

MUNGOS SANGUINEUS ORESTES, new subspecies

KENIA FOREST MUNGOOSE

Type from west slope of Mt. Kenia, altitude 8,500 feet; adult male, number 164152, U. S. Nat. Mus.; collected by J. Alden Loring, October 12, 1909; original number, 7934.

Characters.—Much darker and larger than *sanguineus*, with black predominating on the dorsal surface; skull larger and wider zygomatically.

Coloration.—Median dorsal area from snout to tip of tail blackish; top of head and tip of tail wholly black; back and sides mixed tawny and black, the black predominating; feet like back, only the toes black; sides of face black like the crown. Under parts mixed tawny and dark brown, the tawny predominating.

Measurements.—Head and body, 300 mm.; tail, 282; hind foot, 59. Skull: condylo-basal length, 65; palatal length, 34; zygomatic breadth, 34.5; width of brain case, 26.5; greatest diameter of pm⁴, 8.

The series of six topotypes shows considerable variation. The darkest one has the head feet and median line of the back wholly black. The lightest one is somewhat darker than normal specimens of *sanguineus*. This new race is nearest to *proteus* of Mt. Ruwenzori, which lives in very similar environment. It has a longer tail and larger skull, and is much less blackish.

CROSSARCHUS FASCIATUS COLONUS, new subspecies

EAST AFRICAN BANDED MUNGOOSE

Type from the Southern Guaso Nyiro River, Sotik District, British East Africa; adult female, number 162132, U. S. Nat. Mus.; collected by Edmund Heller, June 21, 1909; original number, 6396. J. Alden Loring.

Characters.—Size and proportions as in *macrurus*, but coloration much grayer, the rufous of the shoulders replaced by buffy gray and the feet seal brown.

Coloration.—General dorsal coloration buffy grayish, lined everywhere with blackish; the posterior back and rump marked by eleven dark cross bands which are well defined only on back, being obsolete on the sides. Separating the broad dark cross bands are narrower light bands of buffy, which on median line become ferruginous. Shoulders and limbs uniform in color with the general body color, the feet and the muzzle dorsally from the level of the eyes dark seal brown. Tail like body color, the terminal one-fourth blackish. Under parts with an ochraceous wash, the hairs basally dark brown; throat lighter buffy, the chin and upper lip bright tawny, in marked contrast to rest of under parts.

Measurements.—Head and body, 380 mm.; tail, 260; hind foot, 92. Skull: condylo-basal length, 75.5; basal length, 71; zygomatic breadth, 42.5; palatal length, 39; greatest diameter of pm⁴, 7.

This East African veldt race of the banded mongoose is a much grayer and lighter colored animal than *macrurus* of Ruwenzori and Uganda. The rich rufous suffusion of the shoulders and the black feet of the latter are wanting, the body color being quite uniform and the black replaced by brown.

These mongooses are often met with on the grassy plains of the Sotik country, where they live in colonies in burrows on the open veldt. They, however, do not stop long in any locality, but move about in small packs of ten to twenty individuals, which take up a temporary abode in any nest of burrows which they find convenient. From our observations it was apparent that they do not remain more than a day or two in any one set of burrows.